

CENTRAL INTELLIGENCE AGENCY

WASHINGTON, D.C. 20505

EXS-35-72

17 November 1972

MEMORANDUM FOR: Charles G. Stefan
Director, Office of Soviet and Eastern
European Exchanges
Department of State

ATTENTION : Yale Richmond
John Kendall Ward

SUBJECT : Comments on Joint US-USSR Proposals for Cooperation
in Science and Technology

1. In response to your request we have received from the members of the Interagency Intelligence Advisory Group on Exchanges (IIAGE) comments on proposals formulated by the US-USSR working groups in preparation for the meeting of the US-USSR Joint Commission of Cooperation in Science and Technology in Washington in early December 1972. It is our understanding that the Department of Commerce and AEC are utilizing other channels to make their views known to the Office of Science and Technology.

CHEMICAL CATALYSIS

2. The USSR probably will have a substantial net gain in at least the area of catalytic reactor modeling. Although Soviet scientists apparently have done some fine work on catalyst theory, severe problems have been experienced in moving from laboratory discoveries to practical commercial-scale catalysts. The Soviets are considered to be weak in the design and construction of large catalytic reactors. The Soviet press has admitted that catalyst plants tend to be small and almost primitive. Moreover, many catalysts for the chemical industry were under development for 10-12 years before they were ready for commercial use. Fifteen to twenty years were required by the USSR to develop synthetic petroleum cracking catalysts. Even where the activity and selectivity of Soviet catalysts compare favorably with properties of Western catalysts, the Soviet products often have a shorter service

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life because of inferior mechanical strength. Shortcomings in Soviet catalysts have affected both the yield and quality of end-products in areas such as petro-chemicals, polymers and oil-refining.

3. The USSR may have done some good work on catalyst development in connection with efforts to obtain nitrogen and hydrogen under mild conditions of temperature and pressure. However, the USSR is not yet known to have incorporated the results of this research in commercial-scale plants.

4. The Soviets stand to gain in the area of computer modeling of reactors and in environmental control, providing the question of proprietary data doesn't interfere. On the other hand, the US may gain useful information on life support systems for space exploration and in the exploitation of metallo-organic catalysts for the fixation of atmospheric nitrogen.

5. There seem to be no strategic areas involved in these cooperative efforts. The real impact of these proposals in chemical catalysis will be to provide a mechanism permitting scientists from both countries to work together. Both the strategic and economic significance is minimal as is the probability of a serious technological loss by the US. Only if the proposed projects were carried beyond their current scope would the Soviets gain significantly from the exploitation of US technology in extending the research to production. We, therefore, request the opportunity to review future joint proposals which might alter the scope of the planned studies.

6. We suggest the following Soviet institutions be considered in planning an itinerary for US scientists involved in the cooperative program.

Institute of Petrochemicals (Gubkinas) for discussions
with Ya. M. Paushkin on polymeric semiconductors as
catalysts

Institute of Petrochemical Synthesis (Topchiyev)

Institute of Elementoorganic Compounds, Moscow

All-Union Scientific Research Institute of Synthetic Rubber,
Leningrad

7. US Army Office of Security opposes any visit in this field to the Stanford Research Institute.

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AGRICULTURE

8. The Soviets have a great deal to gain from the agreement on cooperation in agricultural research, and this is particularly true with respect to Section III, "Mechanization of Agricultural Production". It is unlikely that the US will learn much from the Soviets in this field.

WATER RESOURCES

9. We recommend that the Bureau of Public Roads and the US Coast Guard be included in the discussions of expansive cements and ice engineering respectively. We wish to use the visit of the US working group in the Soviet Union as an example of the difficulties sometimes encountered in achieving true reciprocity. The US working group prior to its departure was briefed on among other things the Lake Sevan Water Tunnel in Armenia, an engineering feat some 30 miles long which will help transfer water from another drainage basin into the Lake Sevan basin where more water is needed. The US working group was allowed to visit Lake Sevan, but was not shown the tunnel, only an old and insignificant hydroelectric project.

10. The US Army informs us that Army Corps of Engineers participation must be limited to its Civil Works functions.

AMERICAN PETROLEUM INSTITUTE PROPOSAL

11. We have no comments on this proposal.

DEEP SEA DRILLING PROJECT

12. The US is considered to be ahead of the USSR in the technology (page 10, paragraph 6) required for this deep sea drilling work. We considered it highly improbable that the Soviets would be able to augment significantly, if at all, the capabilities of the Glomar Challenger especially in those areas suggested in this paragraph. However, we feel that this would be a useful topic from the US point of view.

MICROBIOLOGY

13. We recommend the following Soviet institutes be included in this cooperative program.

Institute of Genetics and Selection of Industrial Micro-organisms, Moscow

Institute of Molecular Biology, Moscow

Institute of Microbiology and Virology of the Academy of Sciences of the Ukrainian SSR, Kiev

National Institute of Anti-Biotics, Moscow

Institute of Biochemistry and Physics of Micro Organisms, Academy of Sciences of the USSR, Puschino

The August Kirchenstein Institute of Microbiology, Latvian Academy of Sciences, Riga

Scientific Center for Biological Research, Puschino

SCIENCE POLICY

14. We consider this subject to be of utmost importance. The US has little knowledge of Soviet decision making processes in Research and Development and in scientific and technological manpower training and resource utilization. Accurate analysis and projections of future military hardware developments are dependent upon the understanding of the Soviet national decision making environment and the interactions of major factions representing science, industry, military, government, and Party.

15. We recommend that as many as possible of the following ministries be included in the development of this cooperative proposal.

Ministry of Electronics Industry

Ministry of Radio Industry

Ministry of General Machine Building

Ministry of Machine Building

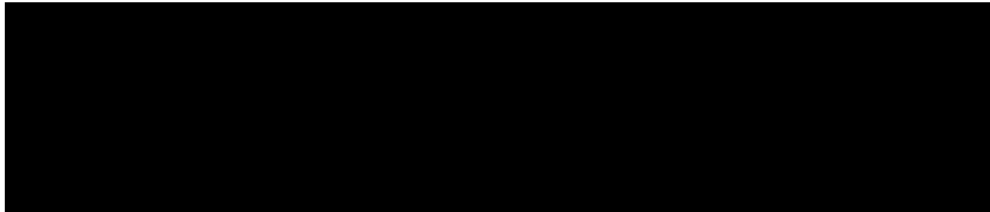
Ministry of Defense Industry

Ministry of Aviation Industry

COMPUTATIONAL LINGUISTICS

16. We find this proposal to be of interest. If the US group involved in this cooperative proposal is to be enlarged, we suggest that the following two names be considered for inclusion.

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Department of Electrical Engineering
AF Institute of Technology
Wright-Patterson Air Force Base
Dayton, Ohio

ENERGY

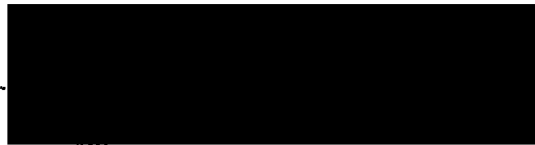
MHD

17. We consider this topic to be of great interest as evidenced by strong and long term IIAGE support for a reciprocal exchange under Section III of the US-USSR Cultural Exchanges Agreement. Soviet exploitation of MHD energy conversion has a wider theoretical and experimental base than that of the US. Information gained through this cooperative program could be of both commercial and military significance. Although the greater gain in this area would be made by the US, the Soviets would also benefit in their MHD program from cooperation with their US counterparts.

18. Because of the existence of several Department of Defense contracts with military overtones in the MHD field, the military services request that OST continue to coordinate through the IIAGE further developments in this cooperative endeavor.

19. Although we have varying degrees of interest in the remaining sub-topics under Energy, we have no specific comments at this time.

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Chairman
Interagency Intelligence Advisory
Group on Exchanges

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